REMARKS

Claims 1-6 are pending in this application.

New dependent claim 6 has been added, and recites that the culture medium is a complete synthesized medium containing racemic 1,2-propanediol as a single carbon source. Support for new claim 6 appears in the specification at page 1, paragraph 1 and in claim 1, as originally filed. Claim 1 has been amended to more clearly set forth the present invention. No new matter has been added.

Regarding the deposits, the specification has been amended to state the dates of deposits, the deposit numbers granted by the depository, and the names and addresses of the depositories. No new matter has been added.

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments, new claim and following remarks.

I. At page 2 of the Office Action, claims 1 and 4 have been provisionally rejected under the judicially created doctrine of obviousness-type double patenting, as being unpatentable over claims 1, 3, 6 and 9 of copending application no. 09/892,743.

The Examiner contends that although the conflicting claims are not identical, they are not patentably distinct from each other because a microbe from genus Alcaligenes of strain FERM BP-3098 is employed in the same reaction.

Accordingly, filed herewith, please find a Terminal Disclaimer in compliance with 37 C.F.R. § 1.321(c), disclaiming the terminal part of the statutory term of any patent granted on the instant application, which would extend beyond the expiration date of the full statutory term of any patent granted on copending Application No. 09/892,743. In view of the foregoing, the Examiner is respectfully requested to withdraw this rejection.

II. At page 2 of the Office Action, claims 1-4 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner states that the term "which is characterized in" appearing in claim 1 is indefinite because it cannot be determined if these are only characteristics, or if the claim is open to other characteristics. The Examiner suggests amending claim 1 to replace the subject term with the term "comprising". Accordingly, claim 1 has been amended to replace the term "which is characterized in" with the term "comprising". In view of claim 1 as amended, the Examiner is respectfully requested to withdraw this rejection.

III. At page 3 of the Office Action, claims 1-5 have been rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which is not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The Examiner states that an affidavit or declaration by applicants or a statement by the attorney of record over his/her signature and registration number, is required, stating that all restrictions imposed by the depositor on availability to the public of the deposited material will be irrevocably removed upon issuance of the patent. The Examiner further states that the specification must also state the date of deposit, the number granted by the depository and the name and address of the depository for each deposited material.

Accordingly, the specification has been amended to state the date of deposit, the number granted by the depository and the name and address of the depository of each deposited material. This information is set forth in the Deposit Receipts filed on December 20, 2001. Also, filed herewith, is a Declaration by Applicant stating that all restrictions imposed by the depositor on availability to the public of the depositing material will be irrevocably removed on issuance of the patent. In view of the foregoing, the Examiner is respectfully requested to withdrawal this rejection.

IV. At pages 3 and 4 of the Office Action, claims 1, 2, 3 and 5 have been rejected under 35 U.S.C. § 102(b) as being anticipated by JP 6-209781 or JP 6-030790.

The Examiner states that JP 6-209781 discloses a method of using Pseudomonas TRB2, TRB4, TRB13 to enantioselectively produce (S)-1,2-propanediol from the raceme. The Examiner points to the abstract where R=H and m=1. Regarding JP 6-030790, the Examiner states that this reference discloses a method of using Pseudomonas TRB2, TRB4, TRB13 to enantioselectively assimilate the (S)-1,2-propanediol enantiomer from its raceme. The Examiner further states that since the reference does not describe the species of Pseudomonas used in the process, but rather refers to them as TRB2, etc., it is unclear what strain these microbes may be, and that it is a reasonable assumption that they may be the same strain as presently claimed. In view of the following, this rejection is respectively traversed.

Enclosed herewith please find a partial translation of the two cited references, JP 6-030790 (A) and JP 6-209781 (B). In view of the enclosed partial translations, it is submitted that (A) and (B) do not teach each and every element of the claimed invention, as claimed in claims 1, 2, 3 and 5, as required for anticipation under 35 U.S.C. § 102(b).

The present invention relates to a process for the preparation (R)-1,2-propanediol including cultivating a microorganism belonging to genus Pseudomonas or genus Alcaligenes which assimilates (S)-1,2-propanediol as a single carbon source, ***in a culture medium containing racemic 1,2-propanediol as a single carbon source or a complete synthetic medium containing racemic 1,2-propanediol as a single carbon source;*** assimilating (S)-1,2-propanediol; and then isolating the remaining (R)-1,2-propanediol from the culture broth. Please see the specification at page 3, line 17 to page 4, line 1.

The present invention requires that the reaction be carried out by cultivating a microorganism in a culture medium containing a substrate, and that the reaction is carried out in a medium containing a single carbon source or in a complete synthetic medium containing racemic 1,2-propanediol as the single carbon source. Further, the invention requires that the microorganism must assimilate (S)-1,2-propanediol as the single carbon source. Accordingly, the microorganism does not need to be pre-

cultured. Please see the present specification at page 8, lines 1-4. For example, the present reaction can be carried out using only a single live cell of the microorganism, because the microorganism can proliferate in the reaction medium to produce a large number of living microorganisms.

Further, isolation and recovery of the remaining (R)-1,2-propanediol from the culture broth is very easy because the culture medium is simple. Please see the present specification at page 8, lines 7-13. Moreover, (S)-1,2-propanediol, is not present in the culture broth, because this isomer is assimilated into the living cells.

With regard to JP 6-030790, the preparation of an optically active 1,2-propanediol from racemic 1,2-propanediol enantiomer mixture by using some strains of Pseudomonas, is disclosed. This reference teaches that the microorganism is first cultivated on a large scale basis. Thereafter, the culture broth is obtained, cells are harvested, cells are disrupted to produce a lysate, or treated to produce a product, for example an enzyme. The cells or cell products are then reacted with a substrate, racemic 1,2-propanediol enantiomer mixture to produce an optically active 1,2-propanediol (R-1). In every example of JP 6-030790, the harvested cells or cell products are reacted with the substrate.

More specifically, the reaction of JP 6-030790 is not carried out in the culture medium while cultivating the microorganism. Further, this reference does not teach or suggest a culture medium containing racemic 1,2-propanediol, an enantiomer mixture of 1,2-propanediol as a single carbon source, a complete synthesized medium containing racemic 1,2-propanediol, or an enantiomer mixture of 1,2-propanediol as a single carbon source, to prepare an optically active 1,2-propanediol.

JP 6-030790 teaches large scale cultivation of the microorganism in a conventional manner, using conventional medium to grow the microorganism. Thereafter, the cells produced or products thereof, are reacted with a substrate to produce an optically active 1,2-propanediol. This method is a two-step method.

In the second step of JP 6-030790, a nitrogen source is not necessary in the reaction, opposed to the present invention, where a nitrogen source is essential for the cultivation of microorganism.

JP 6-030790 does not teach or suggest a microorganism having the ability to assimilate (S)-1,2-propanediol as a single carbon source. Again, in the present invention, it is essential that the microorganism assimilate (S)-1,2-propanediol as a single carbon source.

In view of the foregoing, it is submitted that JP 6-030790 does not teach each and every element of the claimed invention, as claimed in claims 1-3, and 5, as required for anticipation under 35 U.S.C. § 102(b). Thus, the Examiner is respectfully requested to withdraw this rejection.

With regard to reference JP 6-209781, this references discloses substantially the same subject matter as JP 6-030790 with regard to preparing an optically active compound from its racemic compound. However, JP 6-209781 does not exemplify producing an optically active 1,2-propanediol from a racemic 1,2-propanediol.

In view of the foregoing, and the arguments presented regarding JP 6-030790, it is submitted that JP 6-209781 does not teach each and every element of the claimed invention, as claimed in claims 1, 2, 3 and 5, as required for anticipation under 35 U.S.C. § 102 (b). Thus, the Examiner is respectfully requested to withdraw this rejection.

V. At page 4 of the Office Action, claim 5 has been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,246,843.

The Examiner states that claim 5 is directed to a specific strain of Pseudomonas nitroreducens, and that '843 discloses Pseudomonas FERM P-11109, 11108, and 11110, which are capable of producing R-3-halo-1,2-propanediol from the raceme. The Examiner states that although the species of the disclosed Pseudomonas is not revealed by the patent, it is a reasonable assumption that they may be the same strain as presently claimed because they belong to the same genus and perform an analogous enantioselective assimilation. In view of the following, this rejection is respectfully traversed.

It is submitted that the strains disclosed in '843 have different bacterial properties from the strain claimed in claim 5. In addition, when the strain of claim 5 reacts with a substrate, racemic 3-

chloro-1,2-propanediol, (S)-form, is obtained. This is different from the (R)-form, disclosed in '843. Therefore, the strain of claim 5, is not anticipated by U.S. Patent No. 5,246,843.

In view of the foregoing, it is submitted that U.S. Patent No. 5,246,843, does not teach each and every element of the claimed invention as claimed in claim 5, as required for anticipation under 35 U.S.C. § 102(b). Thus, the Examiner is respectfully requested to withdraw this rejection.

In view of the foregoing amendments, new claim, and remarks, it is respectfully submitted that the application is in condition for allowance. Such allowance is solicited.

If the Examiner has any questions regarding this amendment, the application in general, or has any suggestions for placing the application in condition for allowance, the Examiner is requested to call the undersigned at the number listed below.

Respectfully submitted,

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